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REMARKS

Claims 1 – 34 are pending in the present Application. No claims have been amended leaving Claims 1 – 34 for consideration upon entry of the present Amendment. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3 – 23, 27 – 31, and 33 – 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2002/0182389 to Döbler in view of U.S. Patent No. 6,060,154 to Adachi et al. (hereinafter Adachi). (Office Action dated 06/06/2005, page 2) In making the rejection, the Examiner has stated that “Since Döbler expresses concern about the solubility of the organic IR absorbers, it is the Examiner’s position that it would have been *prima facie* obvious to use the boride particles of Adachi’s invention to provide IR absorption to the layers while also providing improved visible light transmission and desired coloration. Such materials would not need to be dissolved in the resin but would form suitable films by dispersion of the particles” (Office Action dated 06/06/2005, page 3)

The Examiner has further stated that “[T]he primary reference, Döbler teaches thermoplastic layers containing IR absorbers. By Adachi’s teaching, the preferred boride compounds are useful of forming improved visible light transmission and desired coloration. One of ordinary skill in the art would expect these benefits to be inherent to the IR absorber, regardless of whether the binder resin is a thermoset or a thermoplastic.” (Office Action dated 06/06/2005, page 5)

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made.

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In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claim 1 as presently amended is directed to a multilayered sheet comprising a core layer comprising a thermoplastic polymer and an IR absorbing additive; wherein the IR absorbing additive is a boride.

As noted by the Examiner, Döbler discloses a second layer containing an infrared absorber and an ultraviolet absorber. (see Abstract) Döbler teaches that suitable infra red absorbers are organic absorbers. (see Page 3, paragraph [0047]) Döbler further teaches that suitable infra red absorbers for use in the second layer are phthalocyanines, naphthalocyanines, metal complexes, azo dyes, anthraquinones, squaric acid derivatives, immonium dyes, perylenes, and polymethines. Döbler does not teach boride infra red additives. Thus Döbler does not teach all elements of the claimed invention.

Adachi teaches a coating solution comprising particles having an average diameter of 100 nm or less for cutting off ultraviolet radiation. (see Abstract) Adachi teaches that lanthanum boride particles can be used in the coating. (see Abstract). Adachi teaches that the coating can comprise at least one of the alkoxides of silicon, zirconium, titanium and aluminum, and partially hydrolyzed polymers of those alkoxides, or a synthetic resin as a binder. (see Abstract) Adachi teaches that the synthetic resin is a curable resin and can be cured by using ultra-violet radiation. (Col. 4, lines 34 – 40). Adachi therefore teaches that the synthetic resin is a thermosetting resin and not a thermoplastic polymer as presently claimed. For this reason at least Adachi also does not teach all elements of the claimed invention.

Since Adachi teaches using thermosetting resins, and Döbler in paragraphs [0054] and [0055] teaches using thermoplastic resins in the core layer, one of ordinary skill in the art upon reading Döbler and Adachi would not seek to combine the two references. Thus there is no motivation for one of ordinary skill in the art to combine Döbler with Adachi in the manner made by the Examiner.

Even if one of ordinary skill were to combine Döbler with Adachi, the claimed invention would not be arrived at. In applying a coating comprising the thermosetting synthetic resin of Adachi to the multilayered heat absorbing system of Döbler, one of ordinary

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skill in the art would arrive at a multilayered sheet that has a core layer that comprises a thermosetting resin and an IR absorber. The present invention in contrast claims a core layer that comprises a thermoplastic polymer and a boride IR absorber.

There are further additional teachings in Döbler and Adachi that would dissuade one of ordinary skill in the art from combining these two references in the manner undertaken by the Examiner. In the first instance there are no explicit teachings in either Döbler or Adachi that would cause one of ordinary skill in the art to combine these references. Döbler does not indicate any desirability of using a second layer that comprises a thermosetting resin. Adachi, on the other hand does not teach or suggest using a thermoplastic resin with the lanthanum boride.

In addition, Döbler teaches that the second layer containing the infra-red absorber is produced by co-extrusion or injection molding. (paragraph [0094] on page 5) Adachi on the other hand teaches a coating that is in the form of a solution prior to being applied to a substrate. (see Col. 2, lines 54 – 58; see Col. 3, lines 31 – 37) In reading Adachi, one of ordinary skill would gather that dispersibility of the infra-red absorber in the solution is critical in order for the coating to effectively cut off UV radiation having wavelengths up to about 400 nm. Adachi stresses dispersibility by teaching that in order to improve dispersibility of the infra-red absorber, additives such as surface active agents, coupling agents, or the like, may be added to the solution. (see Col. 3, lines 31 – 37) Adachi further suggests that in order to improve dispersibility, the solution may be ball milled, sand milled or subjected to ultrasonic dispersion. (see Col. 3, lines 41 – 44) Adachi does not even suggest the use of co-extrusion or injection molding as taught or disclosed in Döbler.

One of ordinary skill in the art upon reading Döbler and Adachi would not be motivated to combine references, since, in the first instance, the solution suggested by Adachi could never be co-extruded or injection molded into the structure of Döbler. Since Adachi stresses the importance of dispersibility, one of ordinary skill in the art would not, upon reading Adachi, have selectively removed and infra-red additive of Adachi and added it to the second layer of Döbler. In other words, one of ordinary skill in the art desirous of performing extrusion on a thermoplastic resin that contains infra-red additives would not be motivated to

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selectively pick out an infra-red additive from a reference that teaches dispersing the additive in reactive solution.

Applicants further maintain that the Examiner has used an improper standard in arriving at the rejection of the above claims under § 103, based on improper hindsight which fails to consider the totality of applicant's invention and to the totality of the cited references. More specifically the Examiner has used Applicant's disclosure to select portions of the cited references to allegedly arrive at Applicant's invention. In doing so, the Examiner has failed to consider the teachings of the references or Applicant's invention as a whole in contravention of § 103, including the disclosures of the references which teach away from Applicant's invention.

§ 103 sets out the test for obviousness determinations. It states, in pertinent part, that such determinations are to be made by consideration of the differences between subject matter sought to be patented and the prior art such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the [pertinent] art. In making a § 103 rejection, the Examiner bears the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1998).

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For these reasons at least, the Examiner has not made a prima facie case of obviousness over Döbler in view of Adachi, and the Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of Adachi.

Claims 2, 24 – 25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of Adachi as applied above, and further in view of GB 2014513 to La Cellophane et al. (hereinafter La Cellophane).” (Office Action dated 06/06/2005, page 3) In making the rejection, the Examiner has stated that “[i]t would have been prima facie obvious to include UV absorbers in both the lowermost and subsequent layers of Döbler’s invention to prevent again and weathering of all the layers” (Office Action 06/06/2005, page 3)

La Cellophane teaches a transparent thermoplastic material comprising at least two superposed films, comprising a bottom film manufactured from a thermoplastic material resistant to UV radiation and others being made of a thermoplastic material that is opaque to infra-red radiation with a wavelength of over 8 microns. (see Abstract).

As noted above, there is no motivation for one of ordinary skill in the art to combine Döbler with Adachi. La Cellophane does not rectify this deficiency. La Cellophane in teaching multilayer thermoplastic structures teaches away from the solution coating of Adachi. One of ordinary skill in the art upon reading La Cellophane would therefore not be motivated to combine it with Adachi.

Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of Adachi and further in view of La Cellophane.

Claims 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of Adachi as applied above, and further in view of Burkhardt et al. (hereinafter Burkhardt) (Office Action dated 06/06/2005, page 4)

In making the rejection, the Examiner has stated that “[i]t is the Examiner’s position that it would have been prima facie obvious to use roll mills in Döbler’s coextrusion line to combine, calibrate and cool the films. (Office Action dated 12/28/2004, page 7)

Burkhardt teaches that convention film extrusion practices include three roll mills to calibrate and cool the film. (see Figure 25) As noted above, there is no motivation to

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combine Döbler with Adachi. Burkhardt in teaching conventional extrusion using two or three roll mills, teaches away from Adachi since Adachi teaches the use of a solution used for a coating. In other words, one of ordinary skill in the art desirous of performing extrusion on a thermoplastic resin that contains infra-red additives would not be motivated to selectively pick out an infra-red additive from a reference that teaches dispersing the additive in solution. One of ordinary skill in the art would therefore not be motivated to combine Burkhardt with Adachi.

Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of Adachi and further in view of Burkhardt.

Claims 13 - 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of U.S. Patent No. 6, 136,441 to MacGregor et al. (hereinafter MacGregor) (Office Action dated 12/28/2004, page 7)

In making the rejection, the Examiner has stated that "[i]t would have been prima facie obvious to use PCCD layers in Döbler's invention to provide films of improved weatherability, chemical resistance, and low water absorption." (Office Action dated 12/28/2004, page 7)

Claim 13 depends from Claim 1, which is directed to a multilayer sheet having a core layer that comprises a thermoplastic polymer and a boride infra-red absorber. Claims 14 - 16 are dependent from Claim 13.

As noted above, Döbler does not teach the use of boride infra-red absorbers. Döbler therefore does not teach all elements of the claimed invention.

MacGregor teaches multilayer plastic composite articles comprising a thermoplastic resin substrate and at least one surface layer comprising a cycloaliphatic polyester or cycloaliphatic polyester blend which is adherent to at least one surface of the substrate. (see Abstract) MacGregor does not teach boride infra-red absorbers and therefore does not make up for the deficiency of Döbler. Thus even if MacGregor is combined with Döbler, the multilayered sheets will not contain the boride infra-red absorbers as presently claimed. Thus, the combination of MacGregor with Döbler will not produce the claimed invention.

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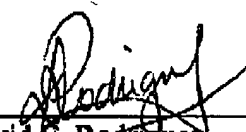
Additionally, since neither Döbler nor MacGregor teaches all of the claimed elements, one of ordinary skill in the art would not find any motivation to combine the references, since combining the references in the manner made by the Examiner would not result in the claimed invention. Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of MacGregor.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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